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FIG. 1 PRIOR ART

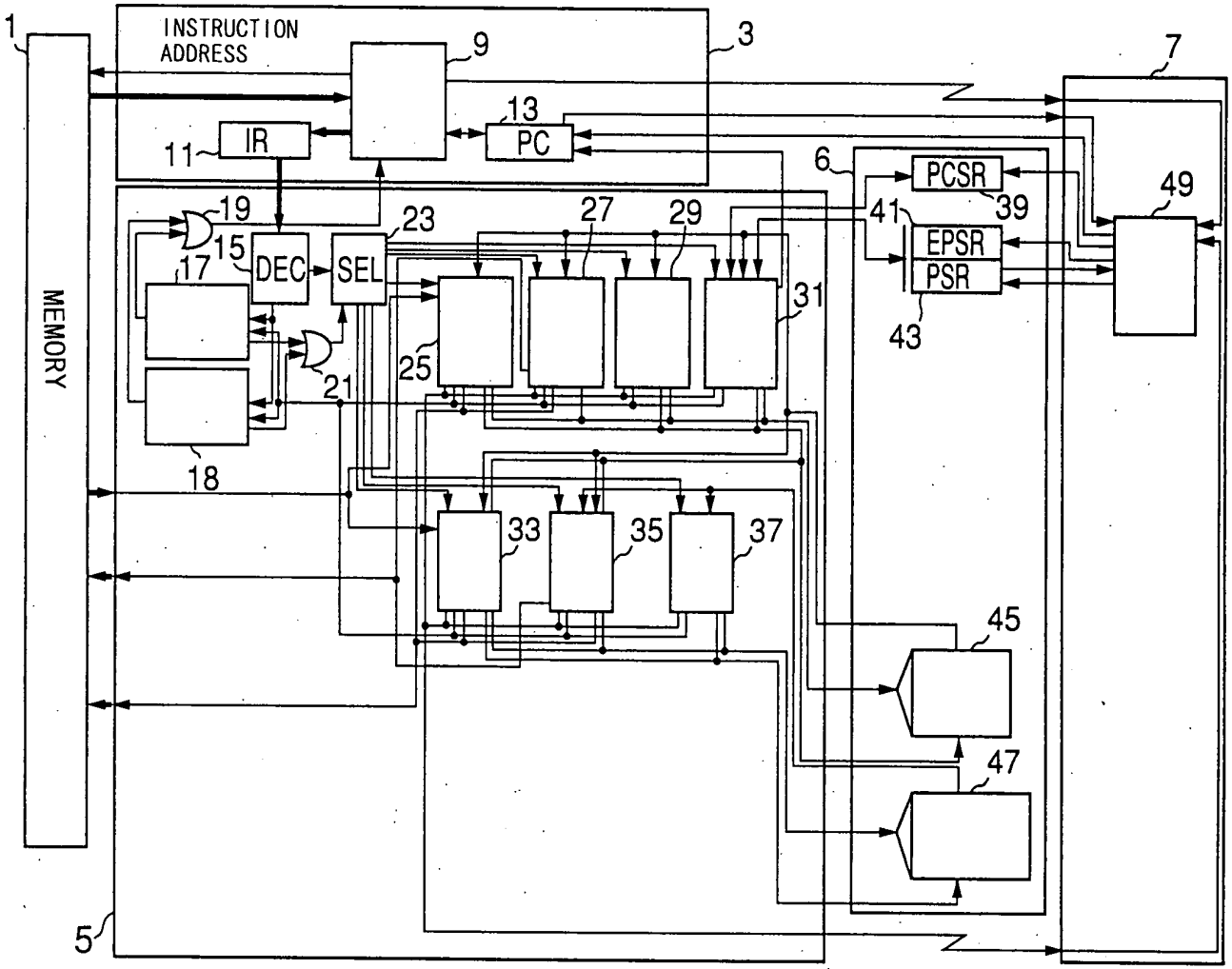

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FIG. 2

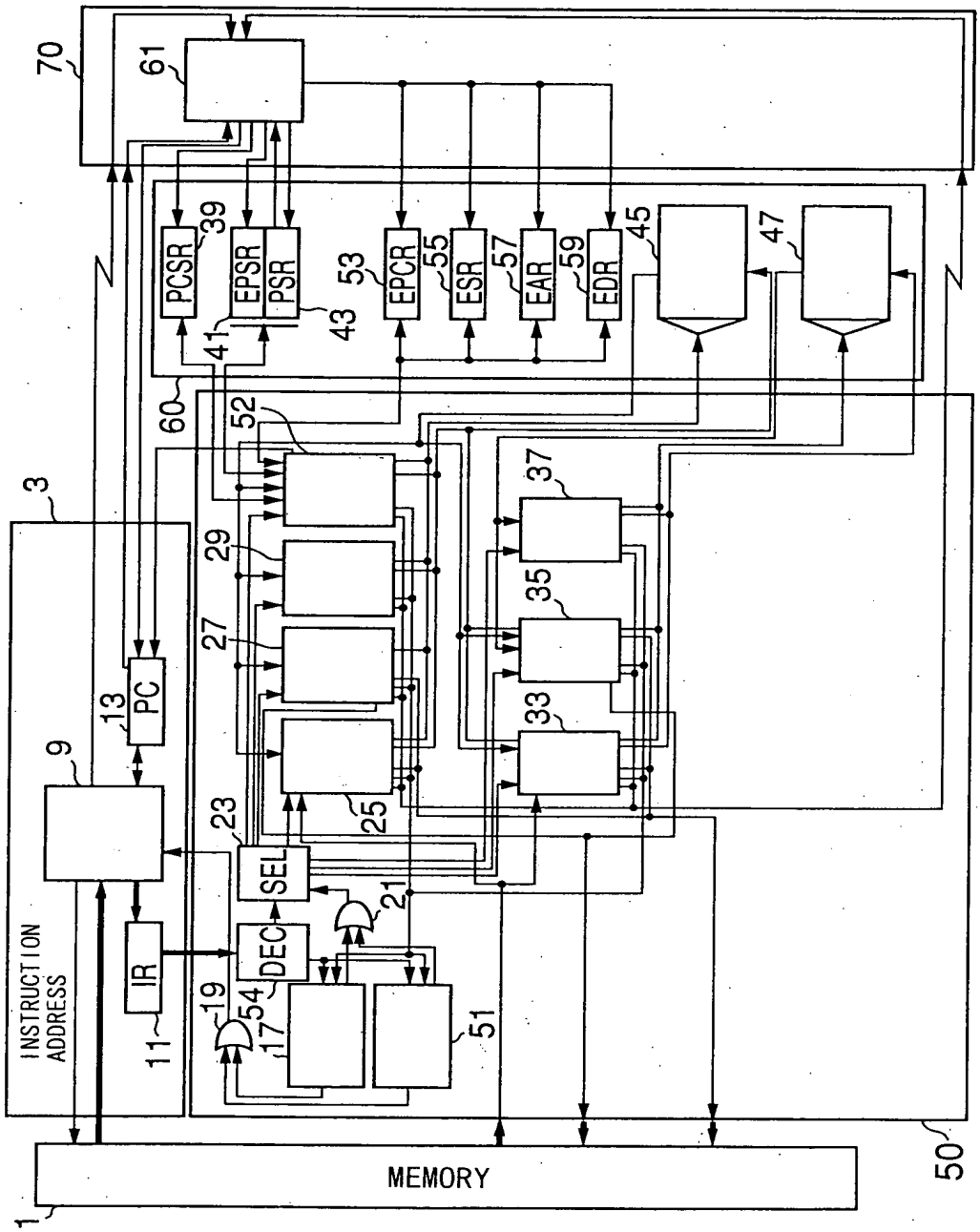

FIG.3

INSTRUCTION EXECUTION PART	KIND OF INSTRUCTION	EPCR	ESR	EAR	EDR
LOAD INSTRUCTION EXECUTION PART	LOAD INSTRUCTION	○	○	○	—
STORE INSTRUCTION EXECUTION PART	STORE INSTRUCTION	○	○	○	○
ARITHMETICAL INSTRUCTION EXECUTION PART	ARITHMETICAL INSTRUCTION	○	○		
FLOATING-POINT LOAD INSTRUCTION EXECUTION PART	FLOATING-POINT LOAD INSTRUCTION	○	○	○	—
FLOATING-POINT STORE INSTRUCTION EXECUTION PART	FLOATING-POINT STORE INSTRUCTION	○	○	○	○
FLOATING-POINT ARITHMETICAL INSTRUCTION EXECUTION PART	FLOATING-POINT ARITHMETICAL INSTRUCTION	○	○	—	—
OTHER INSTRUCTION EXECUTION PART	OTHER INSTRUCTION	○	○	—	—

FIG.4

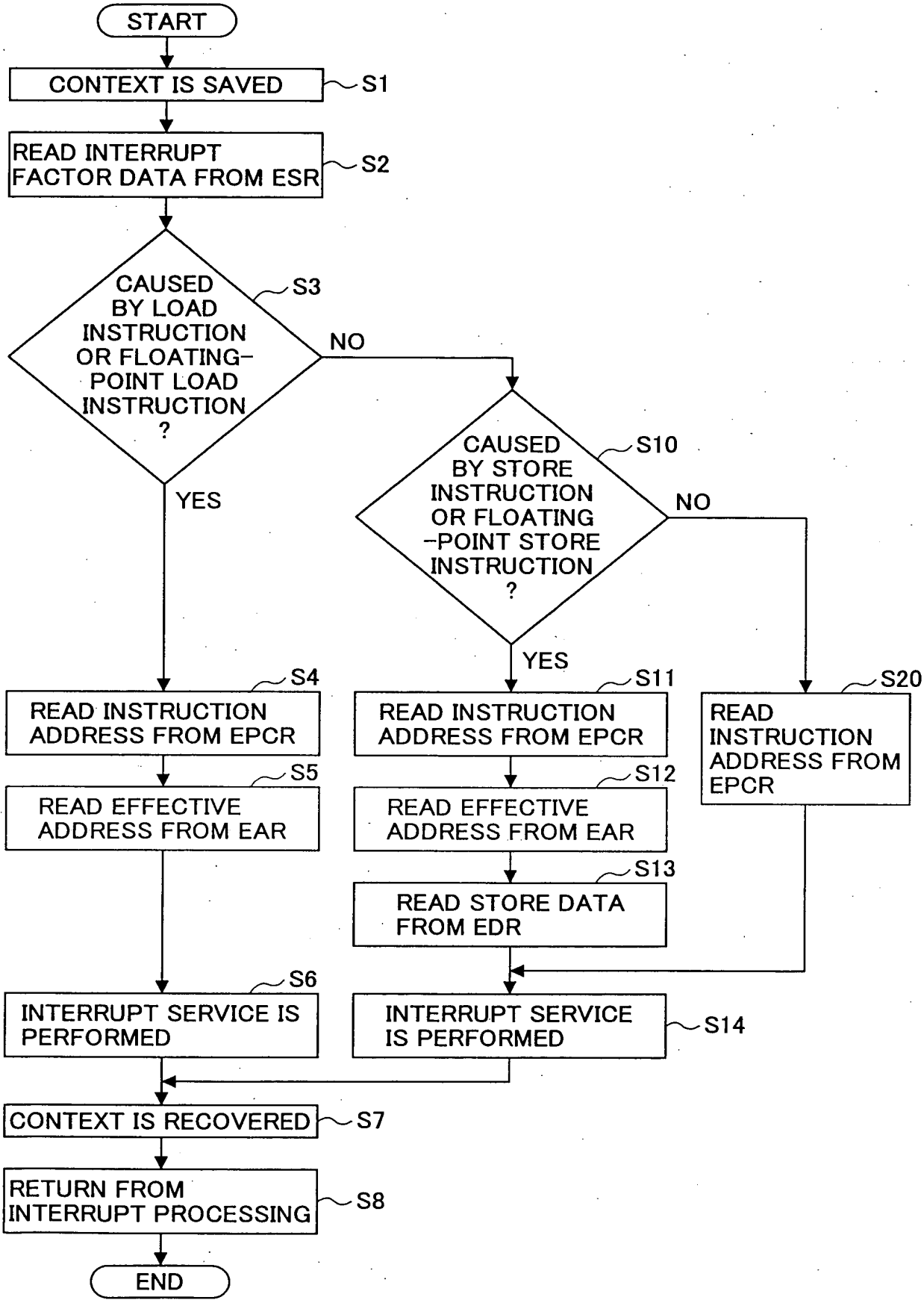
START
CONTEXT IS SAVED
S1
READ INTERRUPT FACTOR DATA FROM ESR
S2
CAUSED BY LOAD INSTRUCTION OR FLOATING-POINT LOAD INSTRUCTION ?
S3
NO
YES
CAUSED BY STORE INSTRUCTION OR FLOATING -POINT STORE INSTRUCTION ?
S10
NO
YES
READ INSTRUCTION ADDRESS FROM EPCR
S4
READ EFFECTIVE ADDRESS FROM EAR
S5
READ INSTRUCTION ADDRESS FROM EPCR
S11
READ EFFECTIVE ADDRESS FROM EAR
S12
READ STORE DATA FROM EDR
S13
READ INSTRUCTION ADDRESS FROM EPCR
S20
INTERRUPT SERVICE IS PERFORMED
S6
INTERRUPT SERVICE IS PERFORMED
S14
CONTEXT IS RECOVERED
S7
RETURN FROM INTERRUPT PROCESSING
S8
END

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FIG. 5

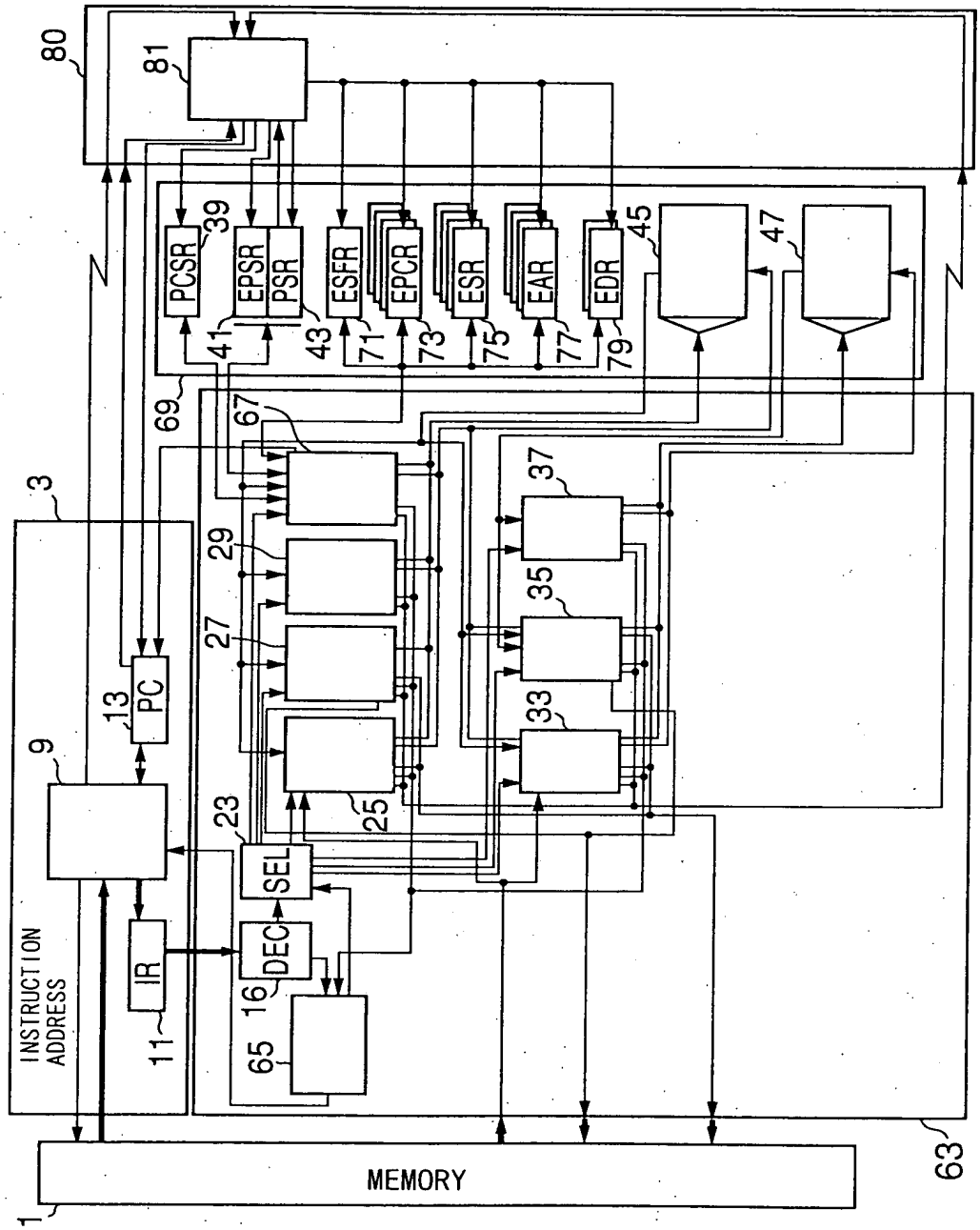

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FIG.6

	6 th bit	5 th bit	4 th bit	Third bit	Second bit	First bit	0 th bit
—	ESR6	ESR5	ESR4	ESR3	ESR2	ESR1	ESR0

FIG.7

INSTRUCTION EXECUTION PART	KIND OF INSTRUCTION	EPCR0 ESR0	EPCR1 ESR1	EPCR2 ESR2	EPCR3 ESR3 EAR3	EPCR4 ESR4 EAR4	EPCR5 ESR5 EAR5 EDR5	EPCR6 ESR6 EAR6 EDR6
LOAD INSTRUCTION EXECUTION PART	LOAD INSTRUCTION				○			
STORE INSTRUCTION EXECUTION PART	STORE INSTRUCTION						○	
ARITHMETICAL INSTRUCTION EXECUTION PART	ARITHMETICAL INSTRUCTION	—	○	—	—	—	—	—
FLOATING-POINT LOAD INSTRUCTION EXECUTION PART	FLOATING-POINT LOAD INSTRUCTION					○		
FLOATING-POINT STORE INSTRUCTION EXECUTION PART	FLOATING-POINT STORE INSTRUCTION	—	—	—	—	—	—	○
FLOATING-POINT ARITHMETICAL INSTRUCTION EXECUTION PART	FLOATING-POINT ARITHMETICAL INSTRUCTION	—	—	○	—	—	—	—
OTHER INSTRUCTION EXECUTION PART	OTHER INSTRUCTION	○						

FIG.8

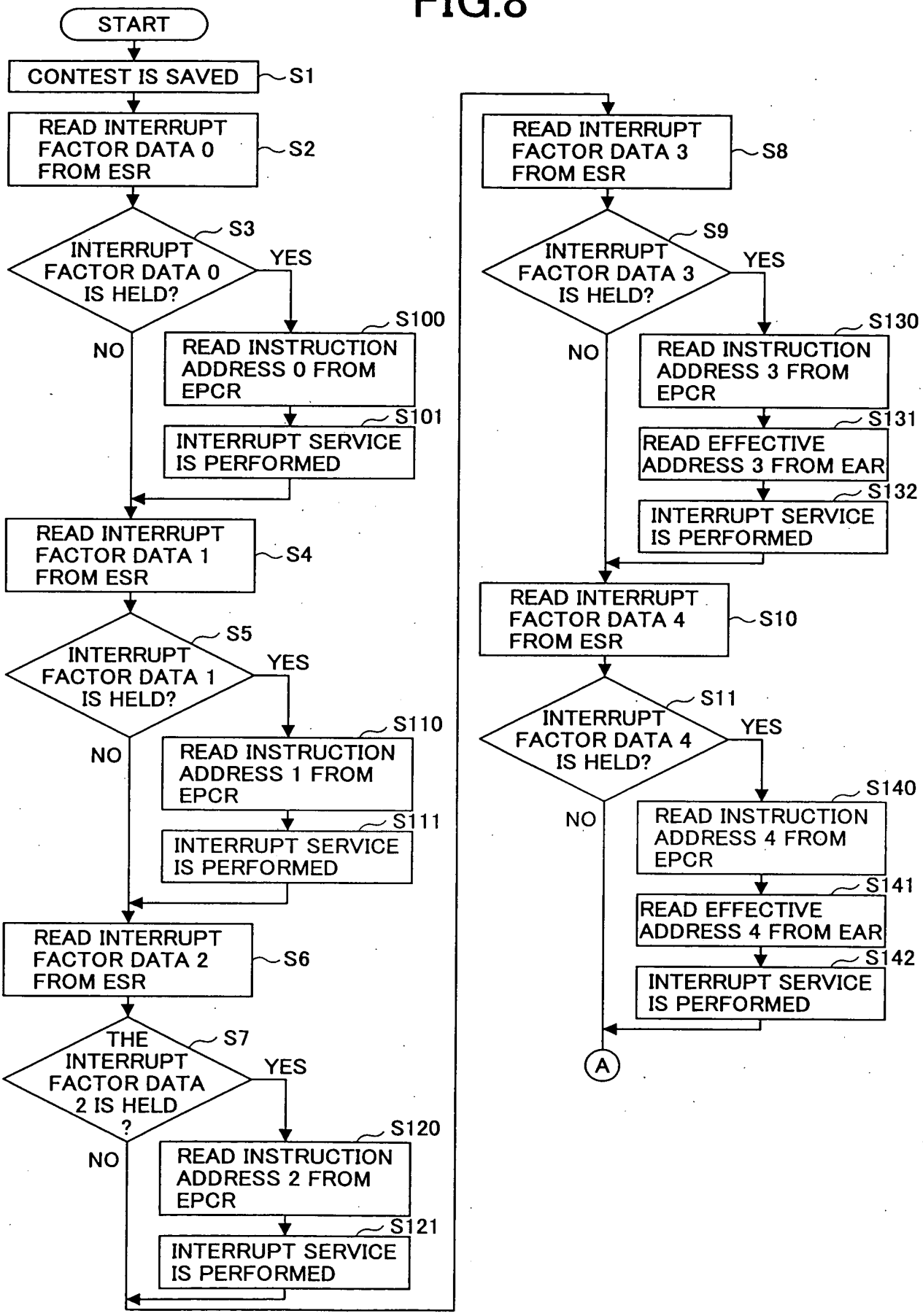
START
CONTEST IS SAVED
S1
READ INTERRUPT FACTOR DATA 0 FROM ESR
S2
INTERRUPT FACTOR DATA 0 IS HELD?
S3
YES
NO
READ INSTRUCTION ADDRESS 0 FROM EPCR
S100
INTERRUPT SERVICE IS PERFORMED
S101
READ INTERRUPT FACTOR DATA 1 FROM ESR
S4
INTERRUPT FACTOR DATA 1 IS HELD?
S5
YES
NO
READ INSTRUCTION ADDRESS 1 FROM EPCR
S110
INTERRUPT SERVICE IS PERFORMED
S111
READ INTERRUPT FACTOR DATA 2 FROM ESR
S6
THE INTERRUPT FACTOR DATA 2 IS HELD ?
S7
YES
NO
READ INSTRUCTION ADDRESS 2 FROM EPCR
S120
INTERRUPT SERVICE IS PERFORMED
S121
READ INTERRUPT FACTOR DATA 3 FROM ESR
S8
INTERRUPT FACTOR DATA 3 IS HELD?
S9
YES
NO
READ INSTRUCTION ADDRESS 3 FROM EPCR
S130
READ EFFECTIVE ADDRESS 3 FROM EAR
S131
INTERRUPT SERVICE IS PERFORMED
S132
READ INTERRUPT FACTOR DATA 4 FROM ESR
S10
INTERRUPT FACTOR DATA 4 IS HELD?
S11
YES
NO
READ INSTRUCTION ADDRESS 4 FROM EPCR
S140
READ EFFECTIVE ADDRESS 4 FROM EAR
S141
INTERRUPT SERVICE IS PERFORMED
S142
A

FIG.9

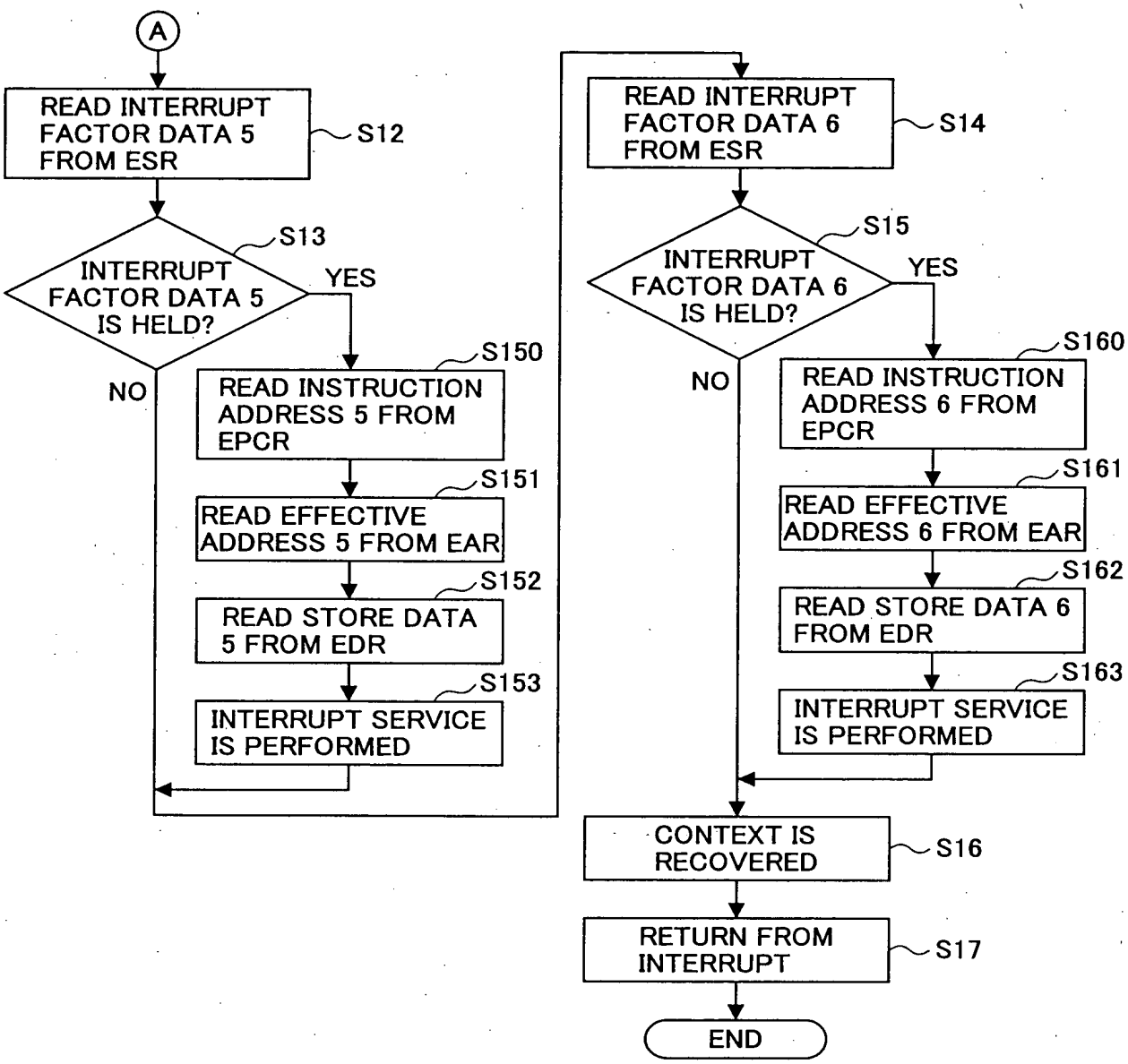
A
READ INTERRUPT FACTOR DATA 5 FROM ESR
S12
INTERRUPT FACTOR DATA 5 IS HELD?
S13
YES
NO
READ INSTRUCTION ADDRESS 5 FROM EPCR
S150
READ EFFECTIVE ADDRESS 5 FROM EAR
S151
READ STORE DATA 5 FROM EDR
S152
INTERRUPT SERVICE IS PERFORMED
S153
READ INTERRUPT FACTOR DATA 6 FROM ESR
S14
INTERRUPT FACTOR DATA 6 IS HELD?
S15
YES
NO
READ INSTRUCTION ADDRESS 6 FROM EPCR
S160
READ EFFECTIVE ADDRESS 6 FROM EAR
S161
READ STORE DATA 6 FROM EDR
S162
INTERRUPT SERVICE IS PERFORMED
S163
CONTEXT IS RECOVERED
S16
RETURN FROM INTERRUPT
S17
END

FIG.10

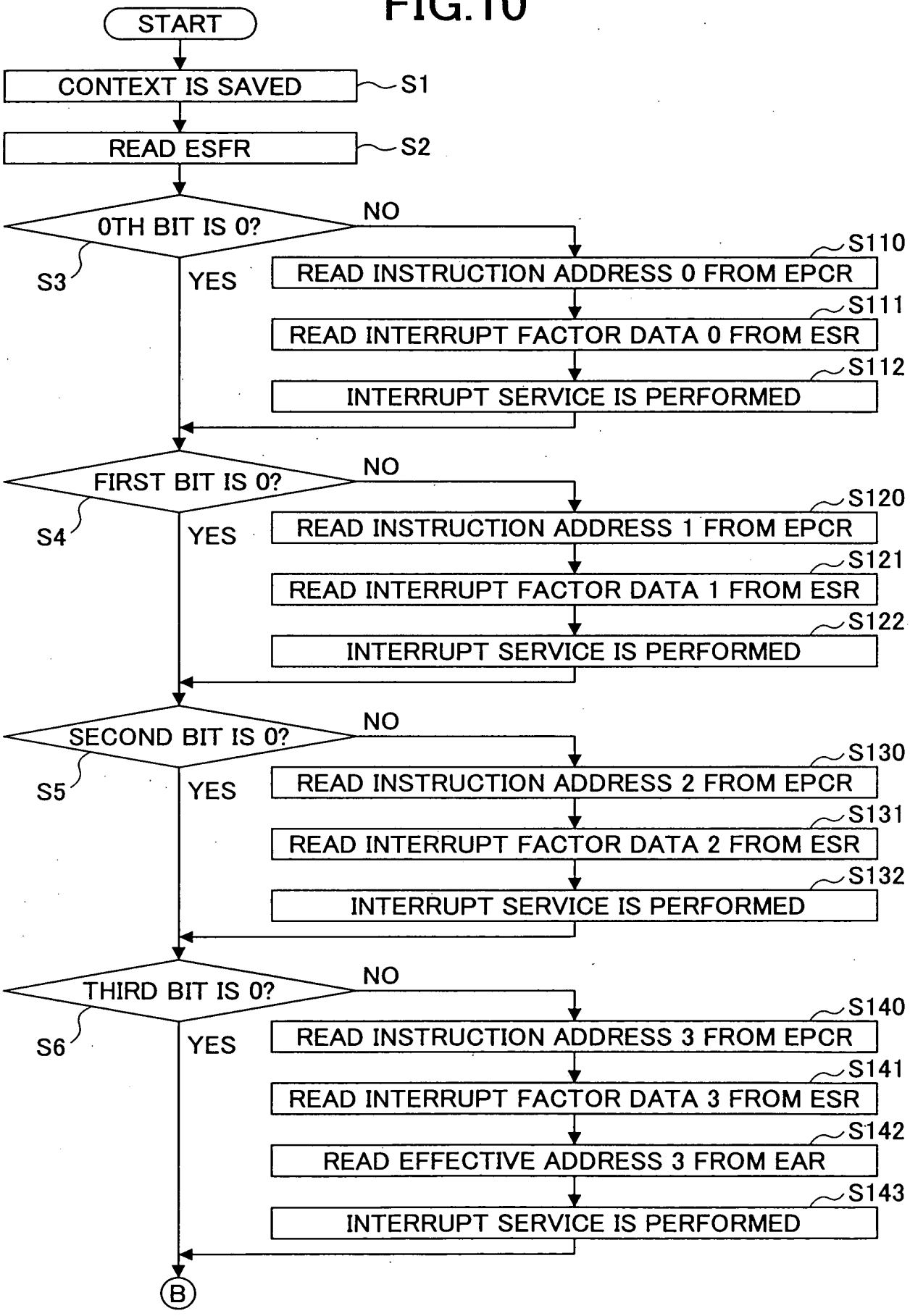
START
CONTEXT IS SAVED
S1
READ ESFR
S2
0TH BIT IS 0?
NO
S3
YES
S110
READ INSTRUCTION ADDRESS 0 FROM EPCR
S111
READ INTERRUPT FACTOR DATA 0 FROM ESR
S112
INTERRUPT SERVICE IS PERFORMED
FIRST BIT IS 0?
NO
S4
YES
S120
READ INSTRUCTION ADDRESS 1 FROM EPCR
S121
READ INTERRUPT FACTOR DATA 1 FROM ESR
S122
INTERRUPT SERVICE IS PERFORMED
SECOND BIT IS 0?
NO
S5
YES
S130
READ INSTRUCTION ADDRESS 2 FROM EPCR
S131
READ INTERRUPT FACTOR DATA 2 FROM ESR
S132
INTERRUPT SERVICE IS PERFORMED
THIRD BIT IS 0?
NO
S6
YES
S140
READ INSTRUCTION ADDRESS 3 FROM EPCR
S141
READ INTERRUPT FACTOR DATA 3 FROM ESR
S142
READ EFFECTIVE ADDRESS 3 FROM EAR
S143
INTERRUPT SERVICE IS PERFORMED
B

FIG.11

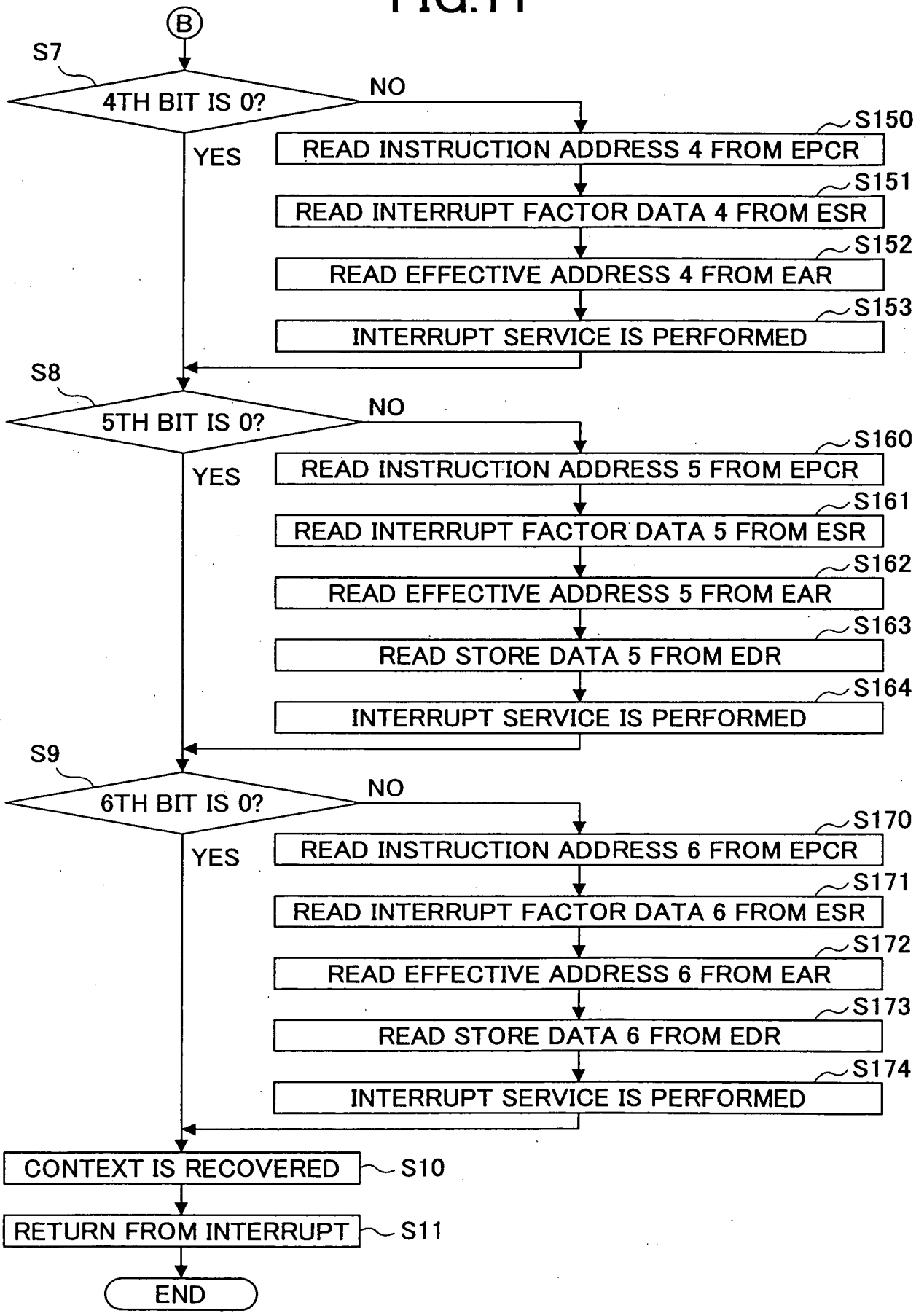
B
S7
4TH BIT IS 0?
NO
YES
S150
READ INSTRUCTION ADDRESS 4 FROM EPCR
S151
READ INTERRUPT FACTOR DATA 4 FROM ESR
S152
READ EFFECTIVE ADDRESS 4 FROM EAR
S153
INTERRUPT SERVICE IS PERFORMED
S8
5TH BIT IS 0?
NO
YES
S160
READ INSTRUCTION ADDRESS 5 FROM EPCR
S161
READ INTERRUPT FACTOR DATA 5 FROM ESR
S162
READ EFFECTIVE ADDRESS 5 FROM EAR
S163
READ STORE DATA 5 FROM EDR
S164
INTERRUPT SERVICE IS PERFORMED
S9
6TH BIT IS 0?
NO
YES
S170
READ INSTRUCTION ADDRESS 6 FROM EPCR
S171
READ INTERRUPT FACTOR DATA 6 FROM ESR
S172
READ EFFECTIVE ADDRESS 6 FROM EAR
S173
READ STORE DATA 6 FROM EDR
S174
INTERRUPT SERVICE IS PERFORMED
CONTEXT IS RECOVERED
S10
RETURN FROM INTERRUPT
S11
END

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FIG. 12

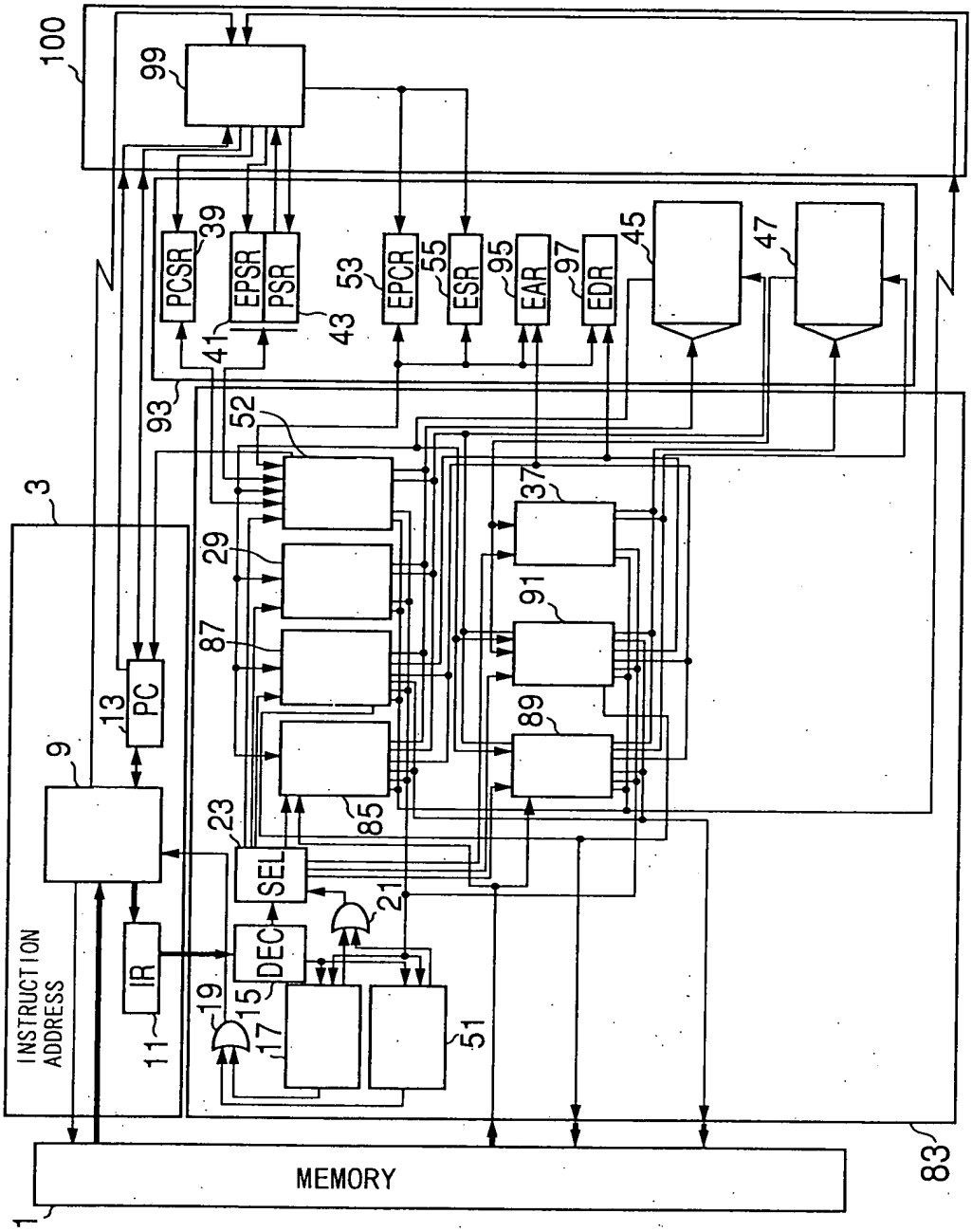
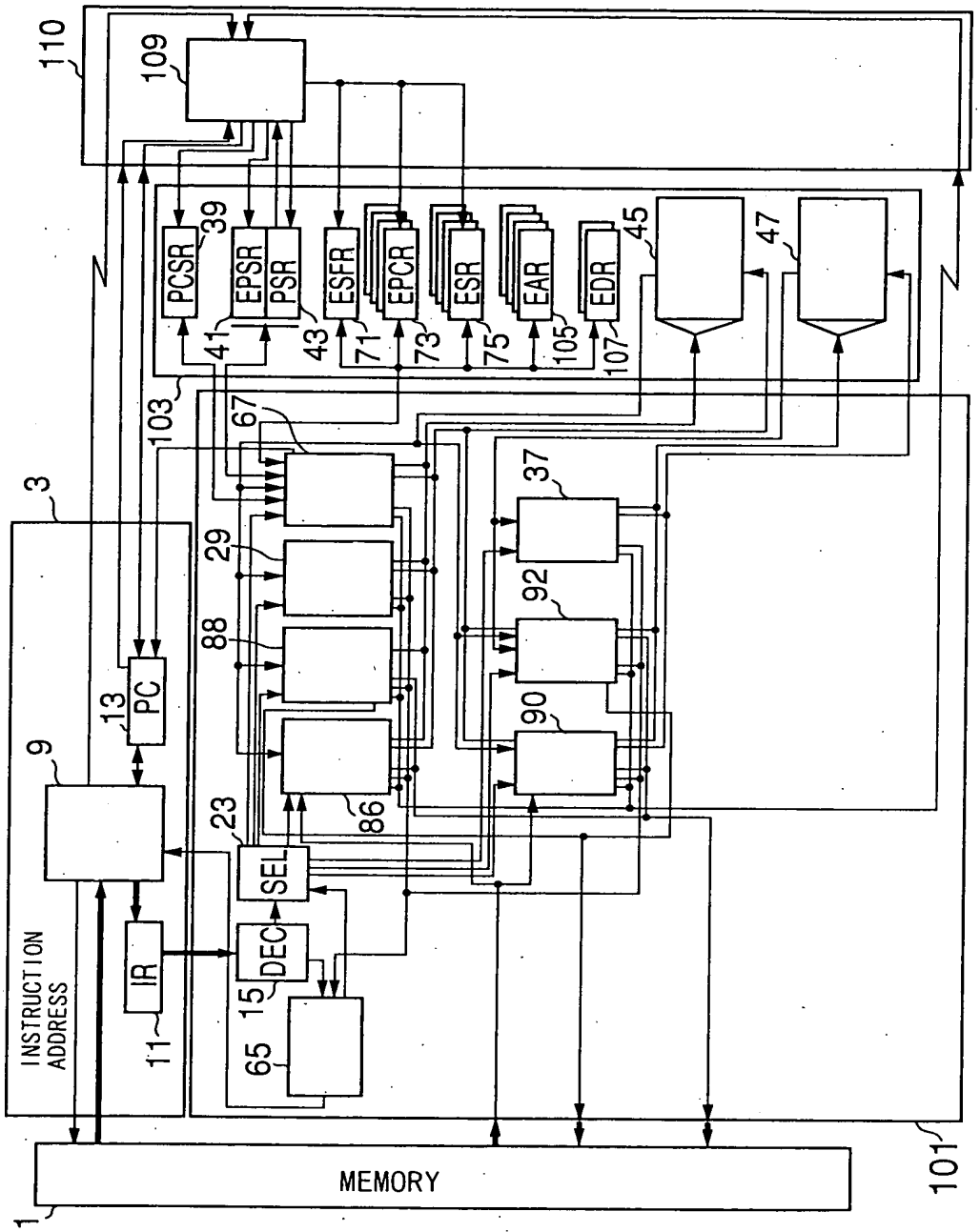


FIG. 13


110
109
PCSR
39
EPSR
PSR
ESFR
EPCR
ESR
EAR
EDR
45
47
41
43
71
73
75
105
107
103
67
3
29
37
88
92
13
PC
90
9
86
23
SEL
DEC
IR
15
11
65
INSTRUCTION ADDRESS
MEMORY
1
101